Draft Individual Review Form

Proposal number: 2001-F212-2 **Short Proposal Title: Rainbow Trout Toxicity Monitoring**

1a) Are the objectives and hypotheses clearly stated?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The objectives and hypotheses are well presented, and supported in this proposal. Basically the proposal intends to refine and test the Rainbow Trout Egg Development protocol as a monitoring tool to better evaluate the effects of toxicants in salmonid life history, and survival in the Sacramento-San Joaquin River system. This proposal provides the logical next step in test development and validation; and will continue in a program of identifacation and quantification of the observed toxicity from urban runoff and other regulated sources previously studied.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

(Conceptual model, study design, methods, analysis and interpretation) - The approach proposed is systematic, logical, and likely to achieve the stated goals and objectives.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The proposal and contained discussion on this subject is consistent with the objectives of the SRWP

1c2) Is the project likely to generate information that can be used to inform future decision making?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

In general,
the level of effort for each task is well described, and appropriate for the needs of this study element. However, if there is a weakness in this proposal, it is only in its lack of specificity on sample collection methods, and locations. As I understand it, samples will be collected by cooperators, rather than project staff, and the locations and methods will be selected by the Technical Review Committee as appropriate. Most importantly, it appears that the proposed budget includes sufficient laboratory effort for initial testing and subsequent response to initial observations of toxicity in Task 7 to be able to define the areal and temporal extent of observed toxicity as well as identify the major toxicant through TIE procedures. This could be an ambitious undertaking, if more than expected toxicity is revealed.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

3) Is the proposed work likely to be technically feasible?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

All proposed program elements are technically feasible, and have
good potential to meet program objectives.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Proposed staff and other participants are well qualified to undertake and complete the stated program elements.

Miscellaneous comments
[Note: in the electronic version, this will be an expandable field]

This proposal will be using, validating and refining a sensitive, species-specific bioassay test method for toxicity identification and ultimate remediation. I am especially impressed with this approach as the use of species of concern to identify, measure, and assess impacts to that species or life stage has always been preferable to mere interpretation of chemical data. Bioassay protocol lets the test organism respond to the combined effects of one or more toxicants under local water chemistries. Most toxicity data, and thus the resultant state and federal water quality criteria, have been derived from tests which evaluated the effects of various pollutants or contaminants taken one at a time in the absence of any other known effector. Fewer investigations have been focused on explaining or resolving the apparent changes in test results when two or more pollutants are combined, ie. copper and zinc which have been shown to have a synergistic effect on their

individual toxicities. Likewise, the effects of the other naturally occurring, dissolved ions in a receiving water (identified in hardness and alkalinity analyses) will have an effect on the resultant toxic response of a given organism; each organism potentially having its own unique response. The bioassay approach is thus most responsive to the issues involved.

The subject proposal builds on a large body of previous work; and refines and validates an existing, highly responsive test protocol which will be helpful in gaining a better understanding of the role of pollutants in the apparent decline of various anadromous species in California. However, it must still be kept in mind that laboratory tests are conducted under carefully controlled environmental conditions which may not accurately reflect the daily changes in receiving quality, especially diel changes in water temperature or dissolved gas equilibria which also affect toxic response; this is not a fatal flaw in the study design, but rather an acknowledgement of the reality of laboratory vs insitu testing. The proposed efforts to evaluate, refine and use the RTED test for watershed assessment is an extremely worthwhile endeavor.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
X Excellent ☐ Very Good ☐ Good ☐ Fair ☐ Poor	[Note: in the electronic version, this will be an expandable field] As requested, I have reviewed the subject proposal, and find it to be an excellent proposal; one that could be very useful in better defining the role of urban runoff and other point and non-point sources of contaminants and toxicants in affecting California's anadromous fisheries